

REMARKS

As a preliminary matter, Applicants appreciate the Examiner's indication of allowable subject matter contained in claims 8 and 12-14.

Claim 1 stands rejected under 35 U.S.C. 102(b) as being anticipated by Dogliotti et al. (U.S. Patent No. 4,121,165). In response, Applicants amended independent claim 1 to further define the interpolation part, the optimum phase detection part, and phase correction part, and how these parts generate and process the interpolation signals, and respectfully traverse the rejection as it applies to the amended claim.

The interpolation part of the present invention is configured to generate a plurality of interpolation signals and interpolate the first digital signal with the interpolation signals. This occurs so that the first digital signal is equalized with a second digital signal based on a second clock signal having a frequency n times frequency of the first clock signal.

The present invention also has the optimum phase detection part configured to be supplied with the interpolation signals from the interpolation part. Based on the supplied interpolation signals, the optimum phase detection part detects a phase error between an optimum point of the reproduced signal and the synchronization clock signal.

Claim 1 also now clarifies that the phase correction part is configured to be supplied with the interpolation signals from the interpolation part and select one of the interpolation signals based on the phase error supplied from the optimum phase detection

part, and that the one of the interpolation signals has an optimum phase with respect to the reproduced signal.

Applicants respectfully submit that the feed forward configuration described in claim 1 of the present application, wherein a reproduced signal is sampled based on a clock signal whose phase is not corrected, the sampled reproduced signal is interpolated with multiple interpolation signals, and one of the interpolation signals having an optimum phase with respect to the reproduced signal is selected based on a phase error distinguishes over the feedback configuration of Dogliotti.

Dogliotti has a phase error τ that is detected in a synchronization estimator (SS) after a phase corrector (CJ), that is fed back only to a time base (UT). The feed back to the UT is used to correct the phase of the clock (CK1) (reproduced signal) and the phases of clock (CK2) and clock (CK3) for generating a signal X (baseband samples) and a linear conversion Y thereof appearing in quadrature with the signal X.

In the present invention, a phase error is supplied to a phase correction part that is configured to be supplied with the interpolation signals from the interpolation part. The phase detection part selects one of the interpolation signals based on the phase error supplied from the optimum phase detection part, wherein the one of the interpolation signals having an optimum phase with respect to the reproduced signal. In Dogliotti, however, the phase error τ is supplied to UT of UCE, where no interpolation signal is supplied. Accordingly, no interpolation signal is selected.

In the Office Action, it is asserted that the interpolation signals (the signals X and Y of FIG. 1 of Dogliotti) are supplied to CJ, which is asserted as corresponding to the “optimum phase detection part” of the present invention. This is different from the present invention. For this reason, Applicants submit that Dogliotti fails to disclose the “phase detection part,” as now recited in amended claim 1.

As further discussed in the Office Action on pages 10-11, Dogliotti discloses in column 4, lines 42-44 that “reference SS denotes a synchronization estimator which, upon receiving the optional equalized baseband signal, emits the error signal τ ”. Thus, Dogliotti teaches that the phase error is detected in SS, and not in CJ, which the Office Action equates with the “optimum phase detection part” of the present application. For this reason, Applicants submit that Dogliotti fails to disclose or suggest the “optimum phase detection part,” as now recited in amended claim 1.

In addition to the above, Dogliotti teaches that the signals X and Y which the Office Action asserts for disclosure of the “interpolation signals” of the present application, are subjected to quadrature detection in CJ. That is, CJ does not select one of the signals X and Y, but merely synthesizes the signal components of the two phases contained in the signal $r(t)$ (in-phase and quadrature) into a demodulated signal. More specifically, Dogliotti discloses at column 4, lines 34-40:

“Reference CJ depends upon a phase corrector, such as the one described in our commonly owned U.S. Pat. No. 4,048,572, designed to carry out the recovery of

phase coherence on a baseband signal and to emit, on a connection 3, the signal demodulated in a coherent way.

Devices UCE and CJ form the demodulator according to the present invention, gradually designated DC.”

Based on the above teaching of Dogliotti, Applicants respectfully submit that selection of an interpolation signal (i.e., phase correction according to the present application) is not disclosed or suggested by Dogliotti. For all of the above reasons, Applicants respectfully submit that amended claim 1 is allowable over Dogliotti. Applicants respectfully request allowance of claim 1.

Claims 2-7, 9-11, and 15-17 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Dogliotti, and further in view of one or more of Tajiri et al. (U.S. Patent No. 5,946,359), Lee (U.S. Patent No. 6,055,119) and Kimoto et al. (U.S. Patent No. 4,519,056). Applicants respectfully traverse the rejection for the reasons recited above with respect to the rejection of independent claim 1.

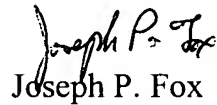
Since claims 2-7, 9-11, and 15-17 ultimately depend upon claim 1, they necessarily include all the features of their associated independent claim, plus other additional features. Thus, Applicants submit that the §103 rejections of these claims has also been overcome for the same reasons as mentioned above to overcome the rejection of independent claim 1, and also because Tajiri, Lee, and Kimoto fail to overcome the deficiencies of Dogliotti. Applicants respectfully request that the §103 rejection of claims 2-7, 9-11, and 15-17 also be withdrawn.

For all of the foregoing reasons, Applicants submit that this Application is in condition for allowance, which is respectfully requested. The Examiner is invited to contact the undersigned attorney if an interview would expedite prosecution.

Respectfully submitted,

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